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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/543,167	01/25/2006	Henning Wiemann	P17877-US1	7909

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EXAMINER	
TAHA, SHAQ	

ART UNIT	PAPER NUMBER
2446	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/543,167	WIEMANN ET AL.	
	Examiner	Art Unit	
	SHAQ TAHA	2446	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *22 July 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1 - 14, 17 - 22, and 25* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1 - 14, 17 - 22, and 25* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *07/22/2005* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *09/22/2008, 07/22/2005*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

This is a Non-Final action for application number 10/543,167 filed on 07/22/2005. Claims 1 – 14, 17 – 22, and 25 are currently pending and have been considered below. Claims 1, 8, 17, 20, and 25 are independent claims.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 1 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

It is not clear whether the data units used in claim 1 line 8 is the same data unit sent by the device in line 1 of claim 1. The examiner interprets as not the same data unit outputted by the device. Please clarify.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1 – 14, 17 – 22, and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wilson et al. (US 2001/0032269) in view of Hellman et al. (US 6,064,648)

Regarding claims 1 and 8, a device for routing data units in a network, comprising a receiver for receiving data units from said network, **[The method starts with operation 202 which sends a data packet from a sending TCP (Transfer Control Protocol) host to an input buffer of a sending switch, (Wilson et al., Paragraph 38)],**

a buffer for buffering data units received by said receiver, **[In operation 202, the data packet is sent from the sending TCP host and received by the input buffer of the sending switch which controls transmission of the data packet to a target switch (also known as a receiving switch), (Wilson et al., Paragraph 38)],**

an output unit for outputting buffered data units to said network on the basis of routing information contained in said data units, **[the switch may also be a router, a routing mechanism, or any other type of device which may direct data to a destination, (Wilson et al., Paragraph 38)],**

a control unit comprising means for monitoring whether said device fulfils a predetermined congestion condition, **[a level of data transfer congestion within the data transfer system is monitored where the monitoring includes marking data during data transfer congestion and detecting marked data, (Wilson et al., Paragraph 18)],**

and means for distinguishing between at least two different congestion causes, for identifying one or more causes of congestion conditions detected fulfilled by said means for monitoring, **[Congestion may occur in the switch when too many senders send data to a receiving host. Congestion may also occur at the receiving host if it is not able to keep up with full wire speed delivery, (Wilson et al., Paragraph 68)],**

and said means for setting congestion notification information being arranged for setting congestion cause information based on the one or more causes identified by unit said means for distinguishing and identifying congestion causes in said one or more data units in which congestion notification information is set, **[It should be appreciated that although the functionality of the congestion marking method is shown by marking and sending back an ACK for the received data packet, any other type of data congestion notification may be used such as, for example, utilizing a NAK (negative acknowledgement) in an STP to notify a host that certain data packets have not been received, (Wilson et al., Paragraph 44)],**

if said means for monitoring determines that said congestion condition is fulfilled, **[Congestion may occur in the switch when too many senders send data to a receiving host. Congestion may also occur at the receiving host if it is not able to keep up with full wire speed delivery, (Wilson et al., Paragraph 68)],**

Wilson et al. fails to teach means for setting congestion notification information in one or more data units output by said output unit,

Hellman et al. teaches that it is thus possible to indicate several different reasons for congestion to an FR network, but this requires that the corresponding distinction be made in the congestion notification of the ATM network, **(Hellman et al., Col. 5, lines 4 – 9),** in order to notify a frame relay network of traffic congestion in an ATM network, **(Hellman et al., Abstract),**

It would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify Wilson et al. by setting congestion notification information in one or more data units output by said output unit wherein Hellman et al. teaches that it is thus possible to indicate several different reasons for congestion to an FR network, but this requires that the corresponding distinction be made in the congestion notification of the ATM network, **(Hellman et al., Col. 5, lines 4 – 9),** in order to notify a frame relay network of traffic congestion in an ATM network, **(Hellman et al., Abstract).**

Regarding claims 2 and 9, the device according to claim 1, wherein said means for monitoring is arranged to monitor the degree of utilization of one or more resources of said device, **[FIG. 7 shows a graph 700 of transport protocol performance of two different types of protocols in wire utilization for varying traffic loads, (Wilson et al., Paragraph 77)],**

and to determine that the congestion condition is fulfilled if the degree of utilization of at least one of said one or more resources fulfils a predetermined condition, **[Congestion may occur in the switch when too many senders send data to a receiving host. Congestion may also occur at the receiving host if it is not able to**

keep up with full wire speed delivery, (Wilson et al., Paragraph 68)].

Regarding claims 3 and 10, the device according to claim 2, wherein said predetermined condition is the exceeding of a predetermined threshold, **[SSTHRESH is a slow start threshold which determines whether the sending state is slow start or congestion avoidance, (Wilson et al., Paragraph 73)].**

Regarding claims 4 and 11, the device according to claim 1, wherein said means for distinguishing and identifying congestion causes is arranged to observe the degree of utilization of two or more resources of said device, **[FIG. 7 shows a graph 700 of transport protocol performance of two different types of protocols in wire utilization for varying traffic loads, (Wilson et al., Paragraph 77)],**

and to identify said one or more causes on the basis of the observed degrees of utilization, **[SSTHRESH is a slow start threshold which determines whether the sending state is slow start or congestion avoidance, (Wilson et al., Paragraph 73)].**

Regarding claims 5 and 12, the device according to claim 2, wherein said resources comprise a buffering capacity and a data unit processing capacity, **[The sending switch includes an input buffer for receiving the packet traffic at the set rate where the input buffer is actively monitored to ascertain a capacity level,**

(Wilson et al., Paragraph 19)].

Regarding claims 6 and 13, the device according to claim 4, wherein said resources are grouped into one or more first resources and one or more second resources, and said means for distinguishing and identifying congestion causes is arranged to identify a first cause on the basis of the degree of utilization of said first resources and a second cause on the basis of the degree of utilization of said second resources, **[Congestion may occur in the switch when too many senders send data to a receiving host. Congestion may also occur at the receiving host if it is not able to keep up with full wire speed delivery, (Wilson et al., Paragraph 68)].**

Regarding claims 7 and 14, the device according to claim 6, wherein said first resources comprise a buffering capacity associated with said receiver for buffering data units upon receipt by said receiver, or a processing capacity for controlling a transfer of data units from said receiver to said output unit, and said second resources comprise a buffering capacity associated with said output unit for buffering data units to be output, or a processing capacity for controlling the output of data units from said output unit, **[The sending switch includes an input buffer for receiving the packet traffic at the set rate where the input buffer is actively monitored to ascertain a capacity level, (Wilson et al., Paragraph 19)].**

Regarding claims 17 and 20, a communication device for sending data units to a receiving communication device over a network, **[In operation 202, the data packet is sent from the sending TCP host and received by the input buffer of the sending switch which controls transmission of the data packet to a target switch (also known as a receiving switch), (Wilson et al., Paragraph 38)],**

said communication device for sending being arranged to receive from said receiving data communication device acknowledgment messages that contain receipt information regarding the receipt of sent data units and congestion notification information regarding congestion in the network, **[a level of data transfer congestion within the data transfer system is monitored where the monitoring includes marking data during data transfer congestion and detecting marked data, (Wilson et al., Paragraph 18)],**

said communication device for sending being arranged to respond to said acknowledgment messages by adapting an operation of controlling the sending of data units in accordance with the information contained in said acknowledgment messages, **[The receiving host may also be able to send information back to the sending host to acknowledge receipt of data, (Wilson et al., Paragraph 37)],**

wherein said communication device for sending is arranged to extract congestion cause information contained in said acknowledgment messages, **[Congestion may occur in the switch when too many senders send data to a receiving host. Congestion may also occur at the receiving host if it is not able to keep up with full wire speed delivery, (Wilson et al., Paragraph 68)],**

and to adapt the operation of controlling the sending of data units in accordance with said congestion cause information, **[In this way, congestion control is managed in a powerful manner using an intelligent feedback system, (Wilson et al., Paragraph 56)].**

Regarding claims 18 and 21, the device according to claim 17, wherein the congestion cause information is designed such that the congestion cause information in an acknowledgment message can indicate the presence or absence of n different causes of congestion, **[Congestion may occur in the switch when too many senders send data to a receiving host. Congestion may also occur at the receiving host if it is not able to keep up with full wire speed delivery, (Wilson et al., Paragraph 68)]**

such that each acknowledgment message containing congestion cause information contains one of 2n different combinations of congestion causes, n being an integer, and said communication device for sending is arranged to identify the congestion cause combination contained in an acknowledgment message and to invoke a response procedure corresponding to the identified congestion cause combination, **[The receiving host may also be able to send information back to the sending host to acknowledge receipt of data, (Wilson et al., Paragraph 37)],**

Wilson et al. fails to teach means for setting congestion notification information in one or more data units output by said output unit,

Hellman et al. teaches that it is thus possible to indicate several different reasons for congestion to an FR network, but this requires that the corresponding distinction be made in the congestion notification of the ATM network, **(Hellman et al., Col. 5, lines 4 – 9),** in order to notify a frame relay network of traffic congestion in an ATM network, **(Hellman et al., Abstract),**

It would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify Wilson et al. by setting congestion notification information in one or more data units output by said output unit wherein Hellman et al. teaches that it is thus possible to indicate several different reasons for congestion to an FR network, but this requires that the corresponding distinction be made in the congestion notification of the ATM network, **(Hellman et al., Col. 5, lines 4 – 9),** in order to notify a frame relay network of traffic congestion in an ATM network, **(Hellman et al., Abstract).**

Regarding claims 19 and 22, the device according to claim 17, wherein said communication device for sending is arranged to extract at least a first and a second congestion cause information, **[Congestion may occur in the switch when too many senders send data to a receiving host. Congestion may also occur at the receiving host if it is not able to keep up with full wire speed delivery, (Wilson et al., Paragraph 68)],**

said first congestion cause information being associated with congestion due to the incapacity to handle the number of data units being transported, **[FIG. 7 shows a**

graph 700 of transport protocol performance of two different types of protocols in wire utilization for varying traffic loads, (Wilson et al., Paragraph 77)],

and said second congestion cause information being associated with congestion due to the incapacity to handle the amount of data being transported, **[FIG. 7 shows a graph 700 of transport protocol performance of two different types of protocols in wire utilization for varying traffic loads, (Wilson et al., Paragraph 77)],**

and said communication device for sending is arranged to respond to the extraction of said first congestion cause information by reducing the number of data units output per unit of time, **[The receiving host may also be able to send information back to the sending host to acknowledge receipt of data, (Wilson et al., Paragraph 37)],**

and to respond to the extraction of said second congestion cause information by reducing the amount of data output per unit of time, **[The adjusting includes reducing the data transfer rate in direct correlation to the level of data transfer congestion as indicated by each marked data and increasing the data transfer rate in direct correlation to a lack of data transfer congestion as indicated by unmarked data per round trip time, (Wilson et al., Paragraph 18)].**

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Regarding claim 25, a method of sending data units over a network comprising: sending data units into said network out of a sending communication device connected to said network, **[The method starts with operation 202 which sends a data packet**

from a sending TCP (Transfer Control Protocol) host to an input buffer of a sending switch, (Wilson et al., Paragraph 38)],

forwarding said data units in one or more routing devices of said network to a receiving communication device connected to said network, each routing device buffering data units received from said network, outputting buffered data units to said network on the basis of routing information contained in said data units, **[In operation 202, the data packet is sent from the sending TCP host and received by the input buffer of the sending switch which controls transmission of the data packet to a target switch (also known as a receiving switch), (Wilson et al., Paragraph 38)],**

monitoring whether a predetermined congestion condition is fulfilled, **[a level of data transfer congestion within the data transfer system is monitored where the monitoring includes marking data during data transfer congestion and detecting marked data, (Wilson et al., Paragraph 18)],**

setting congestion notification information in one or more output data units if said congestion condition is fulfilled, **[It should be appreciated that although the functionality of the congestion marking method is shown by marking and sending back an ACK for the received data packet, any other type of data congestion notification may be used such as, for example, utilizing a NAK (negative acknowledgement) in an STP to notify a host that certain data packets have not been received, (Wilson et al., Paragraph 44)],**

receiving said forwarded data units at said receiving communication device, said receiving communication device sending acknowledgment messages into said network,

said acknowledgment messages containing receipt information regarding the receipt of said forwarded data units as well as congestion notification information and congestion cause information set by said one or more routers in said forwarded data units,

forwarding said acknowledgment messages through said network to said sending communication device, **[The receiving host may also be able to send information back to the sending host to acknowledge receipt of data, (Wilson et al., Paragraph 37)],**

receiving said acknowledgment messages at said sending communication device and responding to said acknowledgment messages by adapting an operation of controlling the sending of data units in accordance with the information contained in said acknowledgment messages, **[In this way, congestion control is managed in a powerful manner using an intelligent feedback system, (Wilson et al., Paragraph 56)],**

extracting said congestion cause information contained in said acknowledgment messages at said sending communication device, **[Congestion may occur in the switch when too many senders send data to a receiving host. Congestion may also occur at the receiving host if it is not able to keep up with full wire speed delivery, (Wilson et al., Paragraph 68)],**

and adapting the operation of controlling the sending of data units in accordance with said extracted congestion cause information, **[In this way, congestion control is managed in a powerful manner using an intelligent feedback system, (Wilson et al., Paragraph 56)],**

Wilson et al. fails to teach means for setting congestion notification information in one or more data units output by said output unit,

Hellman et al. teaches that it is thus possible to indicate several different reasons for congestion to an FR network, but this requires that the corresponding distinction be made in the congestion notification of the ATM network, **(Hellman et al., Col. 5, lines 4 – 9),** in order to notify a frame relay network of traffic congestion in an ATM network, **(Hellman et al., Abstract)**,

It would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify Wilson et al. by setting congestion notification information in one or more data units output by said output unit wherein Hellman et al. teaches that it is thus possible to indicate several different reasons for congestion to an FR network, but this requires that the corresponding distinction be made in the congestion notification of the ATM network, **(Hellman et al., Col. 5, lines 4 – 9),** in order to notify a frame relay network of traffic congestion in an ATM network, **(Hellman et al., Abstract).**

Conclusion

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jeff Pwu can be reached on 571-272-6798.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for

published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/S. T./

Examiner, Art Unit 2446

/Joseph E. Avellino/

Primary Examiner, Art Unit 2446